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Relevance scale ☐ ☐ ☐ ☐ ☐**61** [Designing model hypermedia applications](#)

Franca Garzotto, Luca Mainetti, Paolo Paolini

April 1997 **Proceedings of the eighth ACM conference on Hypertext**Full text available: pdf(969.28 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**Keywords:** hypermedia application design, hypermedia models, model interaction, usability**62** [XXL: a dual approach for building user interfaces](#)

Eric Lecolinet

November 1996 **Proceedings of the 9th annual ACM symposium on User interface software and technology**Full text available: pdf(1.96 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**Keywords:** distributed interfaces, interface builders, iterative development, scripting languages, textual and visual equivalence, user interface software**63** [Using metalevel techniques in a flexible toolkit for CSCW applications](#)

Paul Dourish

June 1998 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 5 Issue 2Full text available: pdf(292.97 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Ideally, software toolkits for collaborative applications should provide generic, reusable components, applicable in a wide range of circumstances, which software developers can assemble to produce new applications. However, the nature of CSCW applications and the mechanics of group interaction present a problem. Group interactions are significantly constrained by the structure of the underlying infrastructure, below the level at which toolkits typically offer control. This article describe ...

**Keywords:** consistency control, consistency guarantees, data distribution, divergency, metalevel programming, open implementation, software architecture**64** [Intermedia: The architecture and construction of an object-oriented hypemedia system](#)<http://portal.acm.org/results.cfm?query=multiple%20user%20application%20simultaneously...> 9/30/04

and applications framework


Norman Meyrowitz

June 1986 **ACM SIGPLAN Notices , Conference proceedings on Object-oriented programming systems, languages and applications**, Volume 21 Issue 11Full text available:  pdf(1.96 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This article presents a case study of the development of the Intermedia system, a large, object-oriented hypermedia system and associated applications development framework providing sophisticated document linkages. First it presents the educational and technological objectives underlying the project. Subsequent sections capture the process of developing the Intermedia product and detail its architecture and construction, concentrating on the areas in which object-oriented technology has ha ...

**65** Transportable applications environment (TAE) plus experiences in "Object"-ively modernizing a user interface environment


Martha R. Szczur, Philip Miller

January 1988 **ACM SIGPLAN Notices , Conference proceedings on Object-oriented programming systems, languages and applications**, Volume 23 Issue 11Full text available:  pdf(1.64 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper describes the evolution of the Transportable Applications Executive (TAE) (developed at NASA/Goddard Space Flight Center) from a traditional procedural menu and command-oriented system to an object-oriented, modeless user interface management system, known as TAE Plus. The impetus for developing this environment and early experiments which led to its current implementation are addressed. The current version of TAE Plus provides design and prototyping functions, working in tandem ...

**66** Serverless network file systems

T. E. Anderson, M. D. Dahlin, J. M. Neefe, D. A. Patterson, D. S. Roselli, R. Y. Wang

December 1995 **ACM SIGOPS Operating Systems Review , Proceedings of the fifteenth ACM symposium on Operating systems principles**, Volume 29 Issue 5Full text available:  pdf(2.48 MB)Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**67** Fast and flexible application-level networking on exokernel systems


Gregory R. Ganger, Dawson R. Engler, M. Frans Kaashoek, Héctor M. Briceño, Russell Hunt, Thomas Pinckney

February 2002 **ACM Transactions on Computer Systems (TOCS)**, Volume 20 Issue 1Full text available:  pdf(500.67 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Application-level networking is a promising software organization for improving performance and functionality for important network services. The Xok/ExOS exokernel system includes application-level support for standard network services, while at the same time allowing application writers to specialize networking services. This paper describes how Xok/ExOS's kernel mechanisms and library operating system organization achieve this flexibility, and retrospectively shares our experiences an ...


**Keywords:** Extensible systems, OS structure, fast servers, network services**68** Draft report on requirements for a common prototyping system

R. P. Gabriel

March 1989 **ACM SIGPLAN Notices**, Volume 24 Issue 3Full text available:  pdf(4.76 MB)Additional Information: [full citation](#), [citations](#), [index terms](#)

**69** Query evaluation techniques for large databases

Goetz Graefe


June 1993 **ACM Computing Surveys (CSUR)**, Volume 25 Issue 2Full text available:  pdf(9.37 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Database management systems will continue to manage large data volumes. Thus, efficient algorithms for accessing and manipulating large sets and sequences will be required to provide acceptable performance. The advent of object-oriented and extensible database systems will not solve this problem. On the contrary, modern data models exacerbate the problem: In order to manipulate large sets of complex objects as efficiently as today's database systems manipulate simple records, query-processi ...

**Keywords:** complex query evaluation plans, dynamic query evaluation plans, extensible database systems, iterators, object-oriented database systems, operator model of parallelization, parallel algorithms, relational database systems, set-matching algorithms, sort-hash duality

**70** The design and implementation of HoME


Kazuhiro Ogata, Satoshi Kurihara, Mikio Inari, Norihisa Doi

July 1992 **ACM SIGPLAN Notices , Proceedings of the ACM SIGPLAN 1992 conference on Programming language design and implementation**, Volume 27 Issue 7Full text available:  pdf(1.21 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

HoME is a version of Smalltalk which can be efficiently executed on a multiprocessor and can be executed in parallel by combining a Smalltalk process with a Mach thread and executing the process on the thread. HoME is nearly the same as ordinary Smalltalk except that multiple processes may execute in parallel. Thus, almost all applications running on ordinary Smalltalk can be executed on HoME without changes in their code. HoME was designed and implemented based on the following ...

**71** ITS: a tool for rapidly developing interactive applications


Charles Wiecha, William Bennett, Stephen Boies, John Gould, Sharon Greene

July 1990 **ACM Transactions on Information Systems (TOIS)**, Volume 8 Issue 3Full text available:  pdf(2.61 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The ITS architecture separates applications into four layers. The action layer implements back-end application functions. The dialog layer defines the content of the user interface, independent of its style. Content specifies the objects included in each frame of the interface, the flow of control among frames, and what actions are associated with each object. The style rule layer defines the presentation and behavior of a family of interaction techniques. Finally, the style program layer i ...

**72** Office-by-example: an integrated office system and database manager


Kyu-Young Whang, Art Ammann, Anthony Bolmarcich, Maria Hanrahan, Guy Hochgesang, Kuan-Tsae Huang, Al Khorasani, Ravi Krishnamurthy, Gary Sockut, Paula Sweeney, Vance Waddle, Moshé Zloof

October 1987 **ACM Transactions on Information Systems (TOIS)**, Volume 5 Issue 4Full text available:  pdf(2.86 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Office-by-Example (OBE) is an integrated office information system that has been under development at IBM Research. OBE, an extension of Query-by-Example, supports various office features such as database tables, word processing, electronic mail, graphics, images, and so forth. These seemingly heterogeneous features are integrated through a language feature called example elements. Applications involving example elements are processed by the database manager, an integrated ...

**73** A framework for undoing actions in collaborative systems

Atul Prakash, Michael J. Knister


December 1994 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 1 Issue 4Full text available:  pdf(2.54 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The ability to undo operations is a standard feature in most single-user interactive applications. We propose a general framework for implementing undo in collaborative systems. The framework allows users to reverse their own changes individually, taking into account the possibility of conflicts between different users' operations that may prevent an undo. The proposed framework has been incorporated into DistEdit, a toolkit for building group text editors. Based on our experience with Dist ...

**Keywords:** DistEdit, computer-supported cooperative work, concurrency control, groupware, selective undo, state recovery, undo, user recovery

**74** Session IV - hypertext systems: Intermedia: issues, strategies, and tactics in the design of a hypermedia document system


L. Nancy Garrett, Karen E. Smith, Norman Meyrowitz

December 1986 **Proceedings of the 1986 ACM conference on Computer-supported cooperative work**Full text available:  pdf(1.20 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)


A hypermedia system provides a tool for cooperative work by allowing writers and designers to share a network of linked documents where they can create documents, link their own and others' documents together, and leave notes for one another. This paper discusses issues that designers need to address in the development of hypermedia systems. Major issues involve what kind of linking, contexts, and visual modeling the system provides. The composite of the answers to these issues determines the na ...

**75** Document Formatting Systems: Survey, Concepts, and Issues

Richard Furuta, Jeffrey Scofield, Alan Shaw

September 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 3Full text available:  pdf(5.36 MB)Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**76** Interactive generation of graphical user interfaces by multiple visual examples

Ken Miyashita, Satoshi Matsuoka, Shin Takahashi, Akinori Yonezawa

November 1994 **Proceedings of the 7th annual ACM symposium on User interface software and technology**Full text available:  pdf(1.16 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


The construction of application-specific Graphical User Interfaces (GUI) still needs considerable programming partly because the mapping between application data and its visual representation is complicated. This study proposes a system which generates GUIs by generalizing multiple sets of application data and its visualization examples. The most notable characteristic of the system is that programmers can interactively modify the mapping by "correcting" the system-generated vis ...

**Keywords:** constraint hierarchies, graphical user interfaces, programming by example, visual parsing, visualization

**77** Collaborative conceptual schema design: a process model and prototype system

Sudha Ram, V. Ramesh

October 1998 **ACM Transactions on Information Systems (TOIS)**, Volume 16 Issue 4

Full text available:  pdf(677.75 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Recent years have seen an increased interest in providing support for collaborative activities among groups of users participating in various information systems design tasks such as, requirements determination and process modeling. However, little attention has been paid to the collaborative conceptual database design process. In this article, we develop a model of the collaborative conceptual schema development process and describe the design and implementation of a graphical multiuser c ...

**Keywords:** collaboration, conceptual modeling, database design, graphical CASE tools, groupware, semantic modeling

## 78 Between u and i: iStuff: a physical user interface toolkit for ubiquitous computing environments

Rafael Ballagas, Meredith Ringel, Maureen Stone, Jan Borchers

April 2003 **Proceedings of the conference on Human factors in computing systems**

Full text available:  pdf(645.22 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


The iStuff toolkit of physical devices, and the flexible software infrastructure to support it, were designed to simplify the exploration of novel interaction techniques in the post-desktop era of multiple users, devices, systems and applications collaborating in an interactive environment. The toolkit leverages an existing interactive workspace infrastructure, making it lightweight and platform independent. The supporting software framework includes a dynamically configurable intermediary to s ...

**Keywords:** development tools, input and interaction technologies, intermediation, programming environments, tangible user interfaces, ubiquitous computing, user interface toolkits, wireless devices

## 79 Scheduler activations: effective kernel support for the user-level management of parallelism

Thomas E. Anderson, Brian N. Bershad, Edward D. Lazowska, Henry M. Levy

February 1992 **ACM Transactions on Computer Systems (TOCS)**, Volume 10 Issue 1

Full text available:  pdf(2.04 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Threads are the vehicle for concurrency in many approaches to parallel programming. Threads can be supported either by the operating system kernel or by user-level library code in the application address space, but neither approach has been fully satisfactory. This paper addresses this dilemma. First, we argue that the performance of kernel threads is inherently worse than that of user-level threads, rather than this being an artifact of existing ...

**Keywords:** multiprocessor, thread

## 80 Issues in the design of a flexible distributed architecture for supporting persistence and interoperability in collaborative virtual environments

Jason Leigh, Andrew E. Johnson, Thomas A. DeFanti

November 1997 **Proceedings of the 1997 ACM/IEEE conference on Supercomputing (CDROM)**

Full text available:  pdf(278.72 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

CAVERN, the CAVE Research Network, is an alliance of industrial and research institutions equipped with CAVE-based virtual reality hardware and high-performance computing resources, interconnected by high-speed networks, to support collaboration in design, education, engineering, and scientific visualization. CAVERNsoft is the collaborative software backbone for CAVERN. CAVERNsoft uses distributed data stores to manage the wide range

Results (page 4): multiple user application simultaneously modify design  
of data volumes (from a few bytes to several terabytes) that ar ...

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**Keywords:** collaborative, persistence, reality, scalable, virtual

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